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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,603	09/16/2003	Lionel Kuhlmann	5589-06100 P1190	3534

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Ann Marie Mewherter  
Conley Rose, P.C.  
P.O. Box 684908  
Austin, TX 78768-4908

EXAMINER

ROSENBERGER, RICHARD A

ART UNIT      PAPER NUMBER

2877

DATE MAILED: 01/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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## Office Action Summary

Application No.

10/663,603

Applicant(s)

KUHLMANN ET AL.

Examiner

Richard A. Rosenberger

Art Unit

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**– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –  
Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17-20 is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-16 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/31/03; 1/8/04</u> | 6) <input type="checkbox"/> Other: ____  |

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1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 8-10, 12, 13, 15, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Rosengaus et al (US 6,020,957).

As in claim 1, Rosengaus et al shows directing light across the entire width of a wafer, including both a center portion and an edge point as claimed; light is directed to both the center and edge portions is the course of a single scan. The reference shows directing light scatter from various portions of the wafer suing different detection channels (30); at least one of the channels (30) will detect scattered light from the central portion, and at least one form an edge portion.

The reference uses Fourier filtering (abstract, lines 9-11) to separate light scattered by valid wafer structures from other light, as in instant claims 10, 12, 13, 15, 16.

The reference scans the entire wafer, and thus scans the edge portion which extends about 3 mm inwardly from the outer edge, as in claims 2, and 15.

Claims 3 and 4 states that the areas of what is defined as the edge region and what is defined as the center region together approximate the entire surface area of the wafer (it is noted that the front side and the back side of the wafer have at least approximately the same area). As the entire wafer is scanned by the system of the reference, the systems scans the edge and center portions of the wafer by this definition.

As in claims 8 and 9, the reference uses CCD array detectors (column 13, lines 45-49), which comprise an array of photosensitive elements (claim 9); such a array detector is "segmented" (claim 8).

4. Claims 6, 7, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosengaus et al (US 6,020,957).

As to claims 6 and 7, the reference teaches each channel uses a CCD array. However, the reference also notes that it is known in the art to use photomultipliers as detectors in similar systems using, as does the system of the reference, Fourier filtering; see column 1, lines 42-45. It would have been obvious to use this known technique with the known photomultipliers as the detector in a parallel detection system as shown by Rosengaus et al because, as mentioned by the reference, such systems are known and the benefits of the plural detection channels as in Rosengaus et al would be applicable to such detection as well as with the CCD array detectors of the reference.

As for claim 14, it would have been obvious to measure both the front and the rear surfaces of the wafer because it is known to be useful to measure both surfaces, and performing both inspections with the same apparatus would have been obvious because this would save cost by not requiring two separate inspection systems.

5. Claims 1, 2 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhao et al (US 6,608,676).

As in claim 1, light is directed onto the entire surface of the wafer in a single scan (column 5, lines 6-10). During the scan, light from different areas of the wafer, for example from different ends of the line of light (20), are detected by different detection channels, that is, the different detectors making up the linear CCD (32). During some point in the scan the different ends of the line of light will fall into the central and edge regions as defined in claim 2, at which point the claim 1 will be met.

As in claim 11, there is a single collection channel (lenses 22).

6. Claims 17-20 are allowable. The art does not teach or suggest claimed separating and detecting different portions of the light from the wafer, combining the output signals from the same measurement spots, and using the combined signals for inspection of the center portion and the individual signals for inspection of the edge portions of the wafer.

Claim 5 contains allowable subject matter; the art does not teach or suggest the detection of light scattered from the center portion and the edge portion of the wafer

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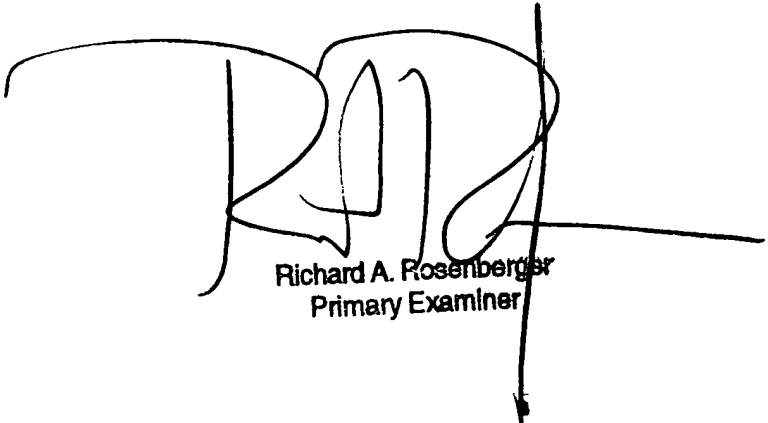
using different types of detectors. Claim 5 is objected to as being dependent from an unallowed parent claim, but would be allowable if rewritten in independent form including all of the limitations of its parent claim.

7. Morioka et al (US 5,274,434) shows a system similar to that shown by the Rosengaus et al reference applied above. Not the spatial filter of Morioka et al.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard A Rosenberger whose telephone number is (571) 272-2428. The examiner can normally be reached on Monday through Friday during the hours of 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R. A. Rosenberger  
5 January 2006



Richard A. Rosenberger  
Primary Examiner